

SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY  
SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

Course Title: MATHEMATICS  
Code No.: MTH 278-4  
Program: CIVIL/MECHANICAL  
Semester: 4  
Date: JUNE 1983  
Author: W. MacQUARRIE

New:

Revision:

APPROVED:

  
Chairperson

JM^ITJ^Q, /?t3  
Date

CIVIL/MECHANICAL  
MTH 278-4  
MATHEMATICS

CALENDAR DESCRIPTION

<u>MATHEMATICS (Calculus)</u>	<u>MTH 278-4</u>
Course Name	Course Number

PHILOSOPHY/GOALS:

When the student has successfully completed this course, he will have demonstrated an acceptable ability to pass tests based upon the course topics as listed elsewhere. If, after completing the course, the student takes further courses (or employment) in which he is required to apply this material, he should then, through practice, be able to develop a good command in this subject matter.

METHOD OF ASSESSMENT (GRADING METHOD):

The students will be assessed by written tests, including major periodic tests based upon large blocks of the subject matter and some unannounced short quizzes on current work, the latter being given at the discretion of the instructor. A final test on the whole course may also be included. A letter grade will be based upon a student's weighted average of all his test results. See also the mathematic's departments annual publication "TO THE MATHEMATICS STUDENT" for further details. This publication is made available to the students early in each academic year.

TEXTBOOK(S):

Calculus with Analytic Geometry - Person

OBJECTIVES:

The basic objective is for the student to develop an understanding of the methods studied, knowledge of the facts presented and an ability to use these in the solution of problems. For this purpose, exercises are assigned. Tests will reflect the sort of work contained in the assignments. The level of competency demanded is the level required to obtain an overall passing average on the tests. The material to be covered is listed on the following page.

<u>Periods</u>	<u>Topic Description</u>	<u>Reference</u>
9	<u>Introduction to Differential Calculus</u> Functional notation, limiting value Differentiation by delta method applications	Person Ch. 9,10,11,12
11	<u>Differentiation by Rule</u> Differentiation by formulas Composite functions and the chain rule, differentiation by inversion Implicit differentiation	P. 13,14,19
13	<u>Practical Applications of Differentiation</u> Gradients Tangents to curves Maxima and Minima Related rates	P. 15,16,17, 18,20
3	<u>Further Differentiation</u> Successive differentiations Linear velocity, acceleration Differentials and applications	P. 15,21
10	<u>Introduction to Integration</u> Relationship to differentiation Indefinite integral, particular integral Accelerated motion	P. 22,23,26
8	<u>The Definite Integral</u> Integration as a sum, summation notation Fundamental theorem of integral calculus Area under a curve, area between curves Trapezoid rule Mean value of a function (power)	P. 23,24,27
10	<u>Applications of Integration</u> Work-pressure on a submerged plate	P. 25,26